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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,893	07/26/2000	Donald Wayne Allen	TH1258 (US)	8026

7590 02/11/2003

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EXAMINER

MITCHELL, KATHERINE W

ART UNIT

PAPER NUMBER

3677

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SK

Office Action Summary

Application No.

09/625,893

Applicant(s)

DUPAL ET AL.

Examiner

Katherine W Mitchell

Art Unit

3673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 25 January 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

1. Claim 3 is objected to because of the following informalities: There seems to be a "cut and paste" error in line 2 of the claim. For purposes of examination, examiner will assume applicant intended amended claim 3 to read as --cylindrical marine element consisting of an ultra-smooth surface on a substantially cylindrical sleeve--. Optionally, deleting "surface" before "substantially" in line 2 would make the claim readable. Since numerous discussions on the claim have occurred, examiner is withholding a 112 rejection in anticipation of grammatical clarification. Appropriate correction is required.

Claim Rejections – 35 U.S.C. 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as obvious over Allen and Hennings's paper, *Vortex-Induced Vibration Tests of a Flexible Smooth Cylinder at Supercritical Reynolds Numbers*, May 1997, hereafter called the Allen et al. paper.

Re claims 1 and 4: The Allen et al. paper teaches on page 681, col 1, 2nd - 4th full paragraphs a method and system for controlling drag and vortex induced vibration, consisting of providing an ultra-smooth surface about the cylinder element of ABS® or PVC plastic with a surface roughness of k/D between 8.86×10^{-5} to 1.51×10^{-4} .

Applicant claims substantially cylindrical element with an exterior surface that has a K/D value of about 1×10^{-4} or less, which 8.86×10^{-5} clearly meets. Note that page 683 "Stationary Cylinder Results" states "the differences between present data and data from most of the included resources in Figure 4 are probably related to surface roughness, as is consistent in ...from Shih et al (1992)." Page 684 concludes that tests using the cylinder elements of said k/D range resulted in determining that surface roughness had an important effect on drag and VIV response of circular cylinders. The apparatus is inherently taught by the method.

4. Claims 2-3 and 5-6 are rejected under 35 U.S.C. 103(a) as obvious over the Allen et al. paper in view of Gregory, US Patent 4470722.

Re claims 2 and 5: As discussed above, the Allen et al paper teaches all the elements except that the ultra-smooth surface can be a coating. Gregory teaches in column 4 lines 59-65 a cylindrical housing element for use with a marine production facility that has an exterior coating of fiberglass or plastic. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Allen et al. paper to include or provide smooth surfaces of 1×10^{-4} or less, including 8.86×10^{-5} or less as taught in the Allen et al. paper, as a coating on a substantially cylindrical element, as taught by Gregory, in order to minimize the additional costs and labor required in obtaining an ultra-smooth surface. The method is inherently taught by the apparatus as shown installed.

Re claims 3 and 6: As discussed above, the Allen et al paper teaches all the elements except that the ultra-smooth surface can be a sleeve. A sleeve is an obvious

variant of a coating or cylindrical surface. Examiner notes that Gregory teaches in col 2 lines 15-23 that fairings (sleeves) are commonly known to suppress VIV of a single riser. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Allen et al. paper to include or provide smooth surfaces of 1×10^{-4} or less, including 8.86×10^{-5} or less as taught in the Allen et al. paper, as a sleeve on a substantially cylindrical element, as taught by Gregory, in order to minimize the additional costs and labor required in obtaining an ultra-smooth surface. The method is inherently taught by the apparatus as shown installed.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure was provided in previous office actions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W Mitchell whose telephone number is 703-305-6713. The examiner can normally be reached on Tues-Fri 9 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 703-306-4115. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-308-8623 for After Final communications.

Art Unit: 3673

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

kwm

February 4, 2003



J. J. SWANN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600